

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listing, of claims in the application:

Claims 1-57 (Cancelled)

58. (Currently amended) A material for controlling a flow of ~~water~~ a fluid to maintain a desired temperature of an object, the material comprising:

an outer layer;

an inner layer; and

gel particles comprising reversible hydrophilic and hydrophobic properties and disposed in the inner layer, that expand when fluid in contact with the gel particles is below a phase transition temperature of the gel particles to limit ~~controlling~~ flow of the fluid through the inner layer to regulate the temperature of an object in contact with the inner layer- by the gel particles expanding when the fluid in contact with the gel particles is below a phase transition temperature of the gel particles and contracting when the fluid in contact with the gel particles is below a phase transition temperature of the gel particles.

59. (Previously presented) The material of claim 58, wherein limiting flow of the fluid through the inner layer limits pumping of the fluid through the inner layer which limits heat loss from the object.

60. (Previously presented) The material of claim 58, wherein the surface temperature of the object is regulated by limiting flow of the fluid through the inner layer.

61. (Previously presented) The material of claim 58, wherein the gel particles contract when fluid in contact with the gel particles is above the phase transition temperature of the gel particles and the expansion of the gel particles allows for flow of the fluid through the inner layer to increase.

62. (Previously presented) The material of claim 61, wherein flow of fluid through the inner layer increases heat loss from the object.

63. (Previously presented) The material of claim 58, wherein the object is the skin of a human body.
64. (Previously presented) The material of claim 58, wherein the fluid flows through the outer layer to contact the gel particles.
65. (Previously presented) The material of claim 58, wherein the inner layer comprises a foam material.
66. (Previously presented) The material of claim 58, wherein the outer layer comprises neoprene.
67. (Previously presented) The material of claim 58, further comprising a second outer layer outside of the outer layer.
68. (Previously presented) The material of claim 58, wherein the gel particles are hydrogel particles having a VPTCT in the range of about 18°C to about 25°C.
69. (Previously presented) The material of claim 58, wherein the inner layer comprises gel particles in an amount approximately 5% to 80% by weight of total dry weight of the matrix.
70. (Previously presented) The material of claim 58, wherein the gel particles comprise poly(N-isopropylacrylamide).
71. (Previously presented) The material of claim 70, wherein the gel particles comprise a hydrophobic monomer.
72. (Previously presented) The material of claim 71, wherein the hydrophobic monomer is N-tert-butylacrylamide.
73. (Previously presented) The material of claim 58, wherein heat loss through the material decreases when the temperature of the fluid in contact with the gel particles is below the phase transition temperature of the gel particles.
74. (Previously presented) The material of claim 58, wherein heat loss through the material increases when the temperature of the fluid in contact with the gel particles is above the phase transition temperature of the gel particles.

75. (Previously presented) The material of claim 58, wherein the material is incorporated in a wetsuit.

76. (New) The material of claim 58, comprising restricting the flow of the fluid through the inner layer by the gel particles expanding when the fluid in contact with the gel particles is below a phase transition temperature of the gel particles.

77. (New) The material of claim 58, comprising increasing the flow of the fluid through the inner layer by the gel particles contracting when the fluid in contact with the gel particles is below a phase transition temperature of the gel particles.